



FAST AND SIMPLIFIED
INTEGRATION



DIGI CONNECTCORE 6UL SBC EXPRESS

Secure and pre-certified connected Single Board Computer for fast and simple design integration in industrial applications

The ConnectCore 6UL SBC Express delivers a powerful, secure and extremely cost-effective off-the-shelf single board computer with complete Linux support, including the Digi TrustFence™ device security framework with out-of-box support for secure boot, encrypted filesystems, protected ports and more.

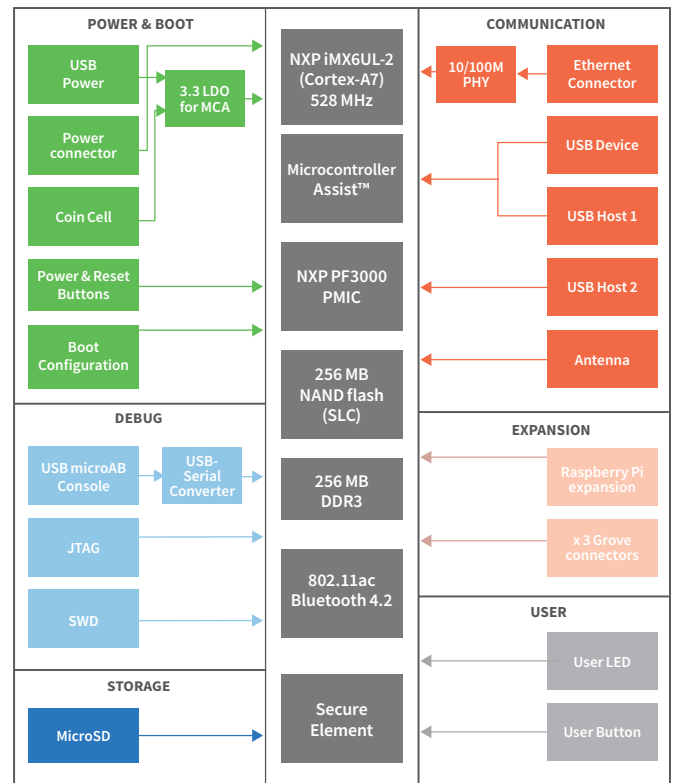
Built on the NXP i.MX6UL processor, it combines 10/100 Ethernet networking and pre-certified wireless 802.11a/b/g/n/ac Wi-Fi and Bluetooth 5 connectivity, including Bluetooth Low Energy.

The extremely compact form factor integrates an on-board dual-band antenna option, USB connectivity, Grove sensor connectors and an expansion connector for unique integration flexibility into a wide range of industrial applications.

FEATURES AND BENEFITS

- Cost-effective off-the-shelf solution
- Limited hardware design effort
- Highly accelerated time-to-market
- Rugged design with mounting options
- Industrial operating temperature range
- Pre-certified dual-band 802.11ac Wi-Fi connectivity
- Bluetooth 5, with Bluetooth Low Energy support
- Integrated on-board high-efficiency antenna
- On-board 10/100 Mbit Ethernet networking
- Grove and expansion connectors for flexibility
- Complete Yocto Project Linux BSP with source code
- Digi TrustFence™ device security framework

BLOCK DIAGRAM



RELATED PRODUCTS



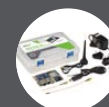
ConnectCore® 6UL SBC PRO



ConnectCore® 6 SBC



ConnectCore® 6UL Starter Kit



ConnectCore® 6UL Development Kit



Wireless Design Services

SPECIFICATIONS

Digi ConnectCore® 6UL SBC Express

| FEATURES | |
|--------------------------------------|--|
| APPLICATION PROCESSOR | NXP i.MX6UL-2, ARM® Cortex®-A7 @ 528 MHz, 128 KB L2 cache, with NEON™ MPE (Media Processor Engine) co-processor |
| MEMORY | 256 MB high-reliability NAND flash (SLC), 256 MB DDR3 |
| WIRED NETWORK CONNECTIVITY | |
| ETHERNET | Single 10/100 Mbit Ethernet |
| WIRELESS NETWORK CONNECTIVITY | |
| WI-FI | Dual-band 802.11a/b/g/n/ac 1x1 (MCS 0-9) |
| BLUETOOTH | Bluetooth 5, with Bluetooth Low Energy support |
| ANTENNA | On-board dual-band Isolated Magnetic Dipole™ (IMD) stamped metal antenna / U.FL connector |
| COMMUNICATION/PERIPHERALS | |
| USB HOST | Dual Type-A |
| USB OTG | Micro-AB |
| CONSOLE | Micro-AB |
| EXTERNAL STORAGE | microSD |
| GROVE | 3 standard Grove connectors (I/D/A) |
| DISPLAY | Optional, through Raspberry Pi HAT compatible display accessories |
| EXPANSION CONNECTOR* | |
| INTERFACES | GPIO, I ² C, SPI, UART, PWM, ADC, JTAG |
| PINOUT | Raspberry Pi HAT compatible |
| CONNECTOR TYPE | 2-row, 40-pin, 2.54 mm pitch |
| OTHER | |
| BUTTONS | Power / Suspend, Reset, User |
| LEDS | User, Console TX/RX |
| COIN CELL | 2-pin, 1.25 mm pitch connector |
| BOOT SELECT | USB/NAND |
| DEBUG | JTAG and SWD via Tag-Connect |
| POWER SUPPLY | |
| 5V DC IN | 2-pin, 2.54 mm pitch, latched connector |
| USB 5V DC IN** | Console USB Micro-AB |
| CURRENT DRAW | TBD |
| CERTIFICATIONS | |
| RADIO APPROVALS | US, Canada, EU, Japan, Australia, New Zealand |
| EMISSIONS / IMMUNITY / SAFETY | FCC Part 15 Class B, EN 55022 Class B, EN 61000-3-2, EN 61000-3-3, ICES-003 Class B, VCCI Class II, AS 3548, FCC Part 15 Subpart C Section 15.247, IC (Industry Canada), RSS-210 Issue 5 Section 6.2.2(o), EN 300 328, EN 301 489-17, EN 55024, EN 301 489-3, Safety UL/UR (or equivalent) |
| ENVIRONMENTAL | |
| OPERATING TEMPERATURE | -40° C to 85° C (-40° C to 185° F) |
| STORAGE TEMPERATURE | -50° C to 125° C (-58° F to 257° F) |
| RELATIVE HUMIDITY | 5% to 90% (non-condensing) |
| DESIGN VERIFICATION | Temperature: IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-78; Vibration/Shock: IEC 60068-2-6, IEC 60068-2-64, IEC 60068-2-27, HALT |
| MECHANICAL | |
| DIMENSIONS | 87 mm x 63 mm (3.43 in x 2.48 in) |
| WARRANTY | |
| PRODUCT WARRANTY | 1 year |

* Additional interfaces available through muxing options

** Standard USB current may not be sufficient for specific use-case

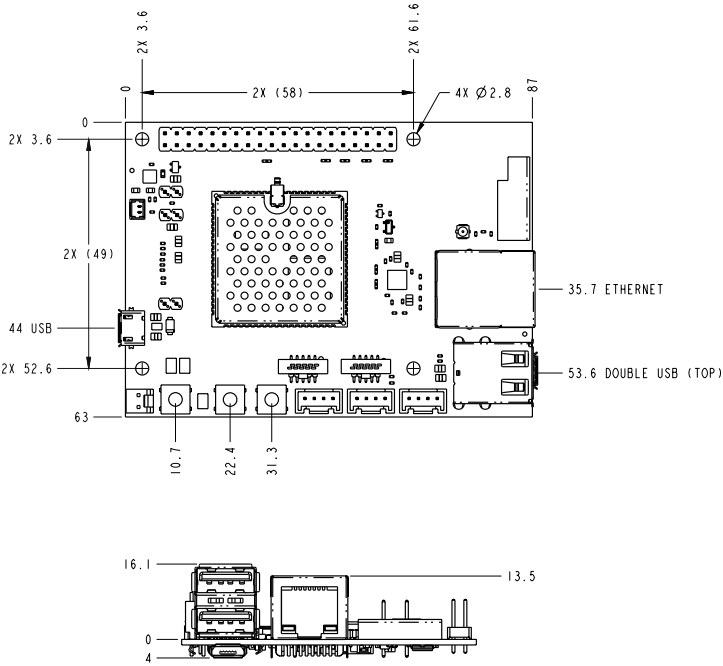
CONNECTCORE® SBC SELECTION GUIDE

| | | ConnectCore 6UL SBC Express | ConnectCore 6UL SBC Pro | ConnectCore 6 SBC for i.MX6Quad | ConnectCore 6 SBC for i.MX6Dual | ConnectCore 6 SBC for i.MX6DualLite |
|----------------------------------|--|--------------------------------|---|------------------------------------|------------------------------------|--|
| PERFORMANCE | Processor | NXP i.MX6UL-2 (Cortex-A7) | NXP i.MX6UL-2 (Cortex-A7) | NXP i.MX6Quad (Cortex-A9) | NXP i.MX6Dual (Cortex-A9) | NXP i.MX6DualLite (Cortex-A9) |
| | Clock Speed | 528 MHz | 528 MHz | 1.2 GHz | 800 MHz | 800 MHz |
| | Microcontroller Assist™ | ✓ | ✓ | ✓ | - | - |
| MEMORY | Flash | 256 MB NAND (SLC) | 256 MB NAND SLC 4 GB eMMC ^{1,7} | 4 GB eMMC ¹ | 4 GB eMMC ¹ | 4 GB eMMC ¹ |
| | RAM | 256 MB DDR3 | 256 MB DDR3 | 1 GB DDR3 | 1GB DDR3 | 512 MB DDR3 |
| NETWORKING | Ethernet | 1 x 10/100 Mbit | 2 x 10/100 Mbit | 1 x Gigabit | 1 x Gigabit | 1 x Gigabit |
| | Wi-Fi | 802.11a/b/g/n/ac 1x1 | 802.11a/b/g/n/ac 1x1 | 802.11a/b/g/n 1x1 | 802.11a/b/g/n 1x1 | 802.11a/b/g/n 1x1 |
| | Bluetooth | 5 | 5 | 4.0 | 4.0 | 4.0 |
| | Wi-Fi / Bluetooth Antenna | On-board/U.FL | U.FL/MMCX ⁶ | U.FL | U.FL | U.FL |
| | NFC Forum Type 2 Tag | - | ✓ | - | - | - |
| | NFC Antenna | - | External | - | - | - |
| | XBee® Socket | - | ✓ | ✓ | ✓ | ✓ |
| SECURITY | Digi TrustFence™ | ✓ | ✓ | ✓ | ✓ | ✓ |
| CELLULAR ² | Micro SIM Card Slot | - | ✓ | ✓ | ✓ | - |
| COMMUNICATION | USB 2.0 Host | 1 | 3 | 3 | 3 | 2 |
| | USB 2.0 OTG | 1 | 1 | 1 | 1 | 1 |
| | PCI Express Mini Card 2.1 | - | ✓ (USB 2.0 Host) | ✓ (USB Host 2.0/x1 PCIe) | ✓ (USB Host 2.0/x1 PCIe) | - |
| | RS232/TTL | -/2 ⁴ | 2/1 | 2/1 | 2/1 | 2/1 |
| | Console | ✓ ⁵ | ✓ | ✓ | ✓ | ✓ |
| | I ² C | ✓ ⁴ | ✓ | ✓ | ✓ | - |
| | SPI | ✓ ⁴ | ✓ | ✓ | ✓ | - |
| | GPIO | ✓ ⁴ | ✓ | ✓ | ✓ | ✓ |
| | Dual CAN | - | ✓ | ✓ | ✓ | - |
| | Grove | 3 | - | - | - | - |
| Expansion Connector ⁴ | ✓ ⁴ | - | - | - | - | |
| GRAPHICS | 2D/3D Hardware Acceleration (GPU) | - | - | ✓ | ✓ | ✓ |
| | Hardware Video Encoding/Decoding | - | - | ✓ | ✓ | ✓ |
| | Resolution | Up to 1366 x 768 | | | Up to 1920 x 1080 | |
| DISPLAY | HDMI | - | - | ✓ | ✓ | ✓ |
| | LVDS ³ | - | 1 | 2 | 1 | - |
| | MIPI DSI ³ | - | - | ✓ | ✓ | - |
| | RGB Parallel | 8-bit ⁴ | 18-/24-bit | 24-bit | 24-bit | 24-bit |
| CAMERA | MIPI CSI | - | - | ✓ | ✓ | - |
| | 8-Bit Parallel | - | ✓ | 2 | 1 | - |
| AUDIO | Headphone Jack | - | ✓ | ✓ | ✓ | - |
| | Line-In / Line-Out / Microphone Header | - | ✓ | ✓ | ✓ | - |
| STORAGE | microSD | ✓ | ✓ | ✓ | ✓ | ✓ |
| | SATA 3.0 | - | - | ✓ | - | - |
| OTHER | Power / Reset Buttons | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Power / Reset Header | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Coin Cell Battery Header | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Power / User LEDs | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Boot Configuration Switch | Population Options | Population Options | ✓ | ✓ | ✓ |
| | JTAG (via Tag-Connect) | ✓ | ✓ | ✓ | ✓ | ✓ |
| | SWD (via Tag-Connect) | ✓ | ✓ | ✓ | ✓ | ✓ |
| ENVIRONMENTAL | Operating Temperature | -40° C to 85° C | -40° C to 85° C | -20° C to 70° C | -40° C to 85° C | -40° C to 85° C |
| MECHANICAL | Dimensions | 87 x 63 mm | 100 x 72 mm | | | |
| | Form Factor | SBC | Pico-ITX | | | |
| DIGI SKUS | | CC-SBE-WMX-JN58 | CC-SBP-WMX-JN58 | CC-SB-WMX-J97C-1 | CC-SB-WMX-L87C-1 | CC-SB-WMX-L76C-1 |

1. pSLC mode option for industrial reliability
2. Via PCI Express Mini Card Connector, or Digi XBee® Cellular
3. With Touch (I2C) + Backlight Control
4. Raspberry Pi HAT compatible header (and mounting holes)
5. USB Device via USB Type AB connector
6. On-board antenna switch configuration
7. Software-selectable: on-board eMMC or microSD

| PART NUMBERS | DESCRIPTION |
|-----------------|--|
| CC-SBE-WMX-JN58 | ConnectCore 6UL SBC Express, i.MX6UL-2, 528 MHz, Secure Element, Microcontroller Assist™, 256 MB NAND flash (SLC), 256 MB DDR3, Single 10/100 Mbit Ethernet, 802.11a/b/g/n/ac, Bluetooth 5, on-board antenna, Micro SD, USB Host, USB OTG, Grove connectors, Expansion connector, Industrial operating temperature |

MECHANICAL DRAWINGS



FOR MORE INFORMATION
PLEASE VISIT WWW.DIGI.COM



DIGI SERVICE AND SUPPORT / You can purchase with confidence knowing that Digi is always available to serve you with expert technical support and our industry leading warranty. For detailed information visit www.digi.com/support.

© 1996-2020 Digi International Inc. All rights reserved.
All trademarks are the property of their respective owners.

91003581
A10/220

DIGI INTERNATIONAL WORLDWIDE HQ
877-912-3444 / 952-912-3444 / www.digi.com

DIGI INTERNATIONAL GERMANY
+49-89-540-428-0

DIGI INTERNATIONAL JAPAN
+81-3-5428-0261 / www.digi-intl.co.jp

DIGI INTERNATIONAL SINGAPORE
+65-6213-5380

DIGI INTERNATIONAL CHINA
+86-21-50492199 / www.digi.com.cn

